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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,403	12/28/2000	Van Jacobson	112025-0175	6925
24267	7590	01/31/2006		
CESARI AND MCKENNA, LLP 88 BLACK FALCON AVENUE BOSTON, MA 02210			EXAMINER ELALLAM, AHMED	
			ART UNIT	PAPER NUMBER
			2668	

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/750,403

Applicant(s)

JACOBSON ET AL.

Examiner

AHMED ELALLAM

Art Unit

2668

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

This responsive to RCA filed on 9/26/2005. The Amendment has been entered.

Claims 1-53 are pending. Claims 1-53 are rejected.

### ***Claim Objections***

1. Claims 33, 36 and 47 are objected to because of the following informalities:

In claim 36, the phrase "the random number generator " lack antecedent basis.

In claims 33 and 47, the limitation of "using a time T in which the packet is expected to arrive" is a redundant limitation, because it has been already stated in respective base claims 31 and 45 that a theoretical arrival time being determined, and based on the specification the expected arrival time is the same as the time T in which the packet is expected to arrive, see specification, page 9, equation 2.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-3, 5-53 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are:

As to claim 1, the omitted step is " the filtered virtual time debt is determined using a filter based on an exponential weighted moving average (EWMA) virtual time delay of a presently received packet using the expression,

$$EWMA_k = (1-g) EWMA_{k-1} + g(VTD)_k,$$

Where k indicates the presently received packet, and k-1 indicates the last packet received, the VTD is the virtual time dept, and VTD is the difference between the time the packet is expected to arrive and the time the packet actually arrived".

According to the specification this step is one necessary for the invention to work.

Claims 2-3 and 5-7 depends from respective parent claim 1, thus they are subject to the same rejection.

As to claims 8, 11, 12, 14 and 16, the omitted step is " the filtered virtual time debt is determined using a filter based on an exponential weighted moving average (EWMA) virtual time delay of a presently received packet using the expression,

$$EWMA_k = (1-g) EWMA_{k-1} + g(VTD)_k,$$

Where k indicates the presently received packet, and k-1 indicates the last packet received, the VTD is the virtual time dept, and VTD is the difference between the time the packet is expected to arrive and the time the packet actual arrived". According to the specification this step is one necessary for the invention to work.

Claims 9, 10, 13, 15 depends from respective parent claims 8, 11, 12, 14 and 16, thus they are subject to the same rejection.

As to claims 17-23, the omitted steps are "the packet should be dropped based on **filtered** time debt", and "the filtered virtual time debt is determined using a filter

based on an exponential weighted moving average (EWMA) virtual time delay of a presently received packet using the expression,

$$EWMA_k = (1-g) EWMA_{k-1} + g(VTD)_k,$$

Where k indicates the presently received packet, and k-1 indicates the last packet received, the VTD is the virtual time dept, and VTD is the difference between the time the packet is expected to arrive and the time the packet actual arrived". According to the specification this step is one necessary for the invention to work.

As to claims 24, and 27, the omitted steps are "the packet should be dropped when the **filtered** time debt exceeds a predetermined value", and "the filtered virtual time debt is determined using a filter based on an exponential weighted moving average (EWMA) virtual time delay of a presently received packet using the expression,

$$EWMA_k = (1-g) EWMA_{k-1} + g(VTD)_k,$$

Where k indicates the presently received packet, and k-1 indicates the last packet received, the VTD is the virtual time dept, and VTD is the difference between the time the packet is expected to arrive and the time the packet actual arrived". According to the specification this step is one necessary for the invention to work.

Claims 25 and 26 depends from respective parent claims 24 and 27, thus they are subject to the same rejection.

As to claims 27-30, claims 27-30 suffers from similar deficiencies as indicated in the above claims 8-26, thus they are subject a similar rejection.

As to claims 31 and 38, the omitted step is that the virtual time dept used in comparing step should be "filtered time dept" in accordance with the expression EWMA indicated above with regard to claim 1.

As to claims 32-37, 39-44, claims 32-37, 39-44 depends from respective parent claims 31 and 38, thus they are subject to the same rejection.

As to claims 45, 52 and 53, in the steps of "comparing, deciding and generating" "the virtual time debt being a filtered time debt" is missing, and "the filtered time debt in accordance with the expression EWMA" in the manner indicated above with reference to claim 1 is also missing.

As to claims 46-51, depends from claim 45, thus they are subject to the same rejection.

3. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is not clear what is meant by the phrase "filtered virtual time debt" in the context of claim 1. Note that claim 4 defines "filtered virtual time debt", since the specification provides no definition other than that found in claim 4, it is not clear what else "filtered virtual time debt" can be within the scope of claim 1.

Claims 2-3 and 5-7 depends from claim 1, thus they are subject to the same rejection.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 17-53 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 17, the specification as originally filed doesn't have support for the feature of "determining whether a packet should be dropped based on the virtual time debt". The specification as originally filed describes the dropping of packet when the **filtered** virtual time debt of packets exceeds a predetermined value, and not just a virtual time debt.

Claims 18-53 suffers from similar deficiencies as indicated above with regard to claim 17, thus they are subject to the same rejection.

In addition to the above:

Regarding claim 24, 26, 29, the specification as originally filed does not describe the features of "the virtual time debt computed as a positive delay from an expected packet arrival time to an actual packet arrival time". More specifically, the specification is silent whether the virtual time debt used in the determination for dropping packets.

Regarding claims 27, 28, the specification as originally filed does not have support for the feature "determining whether a packet should be dropped based on the

virtual time debt. The specification as originally filed describes the dropping of packet based on a **filtered** virtual time debt and not just a virtual time debt.

Regarding claims 31 and 38, the specification as originally filed does not have support for the feature “comparing the virtual time debt with a predetermined value”, the specification as originally filed describes comparing a **filtered** virtual time debt with a predetermined value”, and not just a virtual time debt. Similar remarks apply to the steps of deciding and generating.

Regarding claim 45, the specification as originally filed does not have support for the feature of “deciding if the virtual time debt exceeds a predetermined value”. The specification describe, “**filtered** virtual time debt exceeds a certain value” and not just a virtual time debt exceeding a certain value.

Regarding claim 52, the claimed “virtual time debt” is subject to similar rejection as indicated above with reference to claim 31.

Regarding claim 53, the specification as originally filed does not describe the claimed “Electromagnetic signals propagating on a computer network, the electromagnetic signals carrying instructions for execution in a processor for the practice of the method comprising the steps of: determining an actual arrival time of a packet; determining a theoretical arrival time of the packet; calculating a virtual time debt in response to the actual arrival time and the theoretical arrival time; comparing the virtual time debt with a predetermined value; deciding if the virtual time debt exceeds the predetermined value; and generating, in response to the virtual time debt exceeding the predetermined value, a random number that is used to determine which packet should



be dropped". Note that the specification as originally filed doesn't have support for electromagnetic signals propagating on a computer network, the electro- magnetic signals carrying instructions for execution in a processor for the practice of the method as indicated by the steps of claim 53.

Note that claims that depend from the rejected base claims 17, 24, 29, 31, 38, 45,52 and 53, are subject to the same rejection of their respective base claims.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aweva et al, US (6,894,974); Firoiu et al, US (6,917,585); and Chen et al, US (6,904,015).


Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (571) 272-3097. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2662

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AHMED ELALLAM  
Examiner  
Art Unit 2662  
1/20/06



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